INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2003	**Park:** Shenandoah NP
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Permit#: SHEN-2001-SCI-0030	
Park-assigned Study Id. #: SHEN-00259	
Project Title: DOI-USGS AMPHIBIAN RESEARCH AND MONITORING INITIATIVE (ARMI) IN THE NORTHEAST	
Permit Start Date: Feb 01, 2001	**Permit Expiration Date** Dec 31, 2003
Study Start Date: Feb 01, 2001	**Study End Date** Dec 31, 2005
Study Status: Continuing	
Activity Type: Monitoring	
Subject/Discipline: Herpetology (Amphibians / Reptiles)	

Objectives:

SNP is one of the Index Sites for the DOI-USGS Amphibian and Research Monitoring Initiative (ARMI) in the Northeast Region. The goals of this long-term amphibian monitoring project at SNP are to:

1. Monitor pond, streamside and terrestrail amphibians

2. Estimate bias in and validate survey methodologies

3. Assess spatial and temporal variation in amphibian counts in relation to environmental variables

4. Assess health and disease status of amphibians at SNP

5. Provide amphibian and reptile distribution map data to SNP

6. Conduct population monitoring and conservation genetics work on the federally endangered Shenandoah salamander (Plethodon shenandoah)

Findings and Status:

An Excel spreadsheet showing survey method, date, latitude/longitude coordinates, species, age class, and counts of adults, larvae, and egg masses was provided to Shenandoah National Park. In 2003, we conducted egg mass and visual encounter surveys at 5 vernal pools in Shenandoah National Park. Below is a general summary of species observed at each pool in March and April.

Big Meadows: wood frog, spring peeper, American toad

Hogcamp Swamp: wood frog, red-backed salamander, spotted salamander

Swamp Island: wood frog

Rocky Creek: wood frog, spring peeper

All pools in 2003 contained water during the spring and summer and amphibians successfully metamorphosed from these pools.

We surveyed 9 streams in 2003 using two 15 m x 2 m transects (15 m long spanning 1 m on the stream bank and 1 m in the stream channel) and two 4 m2 quadrats (spanning 2 m on the bank and 2 m in the channel) at each stream. Two to three removal passes were conducted on both transects. Below is a general summary of species observed at each stream in June and July.

Devil's Staircase (SRP 28): northern two-lined salamander, northern red salamander, northern dusky salamander, northern spring salamander

Doyle's River (SRP 35): northern two-lined salamander, northern red salamander, northern dusky salamander, red-backed salamander

Hawksbill Creek Tributary (SRP 42): northern two-lined salamander, northern dusky salamander, seal salamander, red-backed salamander, Shenandoah salamander

Ivy Creek Tributary (SRP 71): seal salamander, northern dusky salamander, northern two-lined salamander, northern red salamander

Jeremy's Run (SRP 10): seal salamander, northern dusky salamander, northern two-lined salamander, northern red salamander, white-spotted slimy salamander

Paine Run (PR 123): northern spring salamander, northern two-lined salamander, northern red salamander

Piney River (PIN 003): northern two-lined salamander, eastern box turtle

Control Stream (Shenk's Hollow): northern two-lined salamander, seal salamander, red-backed salamander, northern red salamander

Staunton River: no salamanders

In general, fewer salamanders were observed in 2003. This may be a result of higher water levels and flows caused by increased rainfall in 2003 compared to previous years. Stream bank cobble areas searched in previous years were covered by water, leading to differences in search areas and detectability of salamanders.

We conducted visual encounter surveys turning over rocks and logs during the day at 10 terrestrial plots (15 m2) for terrestrial salamanders. Burn plots are located on Pumpkin Hill where prescribed burns occurred on 3 April 1999 and 9 April 2001. Control plots are located in Shenks Hollow. Below is a general summary of species observed at each plot in October and April.

Burn 2: red-backed salamander

Burn 3: red-backed salamander, northern ring-necked snake

Burn 4: red-backed salamander

Burn 5: red-backed salamander

Burn 6: red-backed salamander

Control 2: red-backed salamander, white-spotted slimy salamander

Control 3: red-backed salamander, white-spotted slimy salamander, northern copperhead

Control 4: red-backed salamander

Control 5: red-backed salamander, white-spotted slimy salamander

Control 6: red-backed salamander, white-spotted slimy salamander, northern two-lined salamander

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?

No

Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**
0	5000

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college

Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0